

November 25, 1996

Mr. Paul Little (DRE-8J)  
Chief, Waste, Pesticides and Toxics Division  
Enforcement and Compliance Assurance Branch  
USEPA, Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

Re: Administrative Order on Consent (AOC) dated November 27, 1990  
Franklin Power Products/Amphenol Corporation  
Franklin, IN  
IND 044 587 848

RECEIVED  
NOV 26 1996  
DIVISION FRONT OFFICE  
Waste, Pesticides & Toxics Division  
U.S. EPA - REGION 5

Dear Mr. Little:

Attached, please find four bound copies of a *Report of Shallow Ground Water Sampling Along Hurricane Creek, Former Amphenol Facility, Franklin, Indiana* submitted on behalf of Respondents Amphenol Corporation and Franklin Power Products. The methodology used for this investigation was discussed and agreed to during an October 8, 1996 telephone conference between representatives of U.S. EPA and Amphenol.

If you have any questions or comments, please get in touch with Mr. Sam Waldo.

Very truly yours,

EARTH TECH

  
James H. Keith  
Project Manager

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# **Report of Shallow Ground Water Sampling Along Hurricane Creek Former Amphenol Facility Franklin, Indiana**

*Prepared for:*

Amphenol Corporation  
358 Hall Avenue  
Wallingford, CT 06492

Franklin Power Products  
400 Forsythe Street  
Franklin, IN 46131

*Prepared by:*

EARTH TECH  
5010 Stone Mill Road  
Bloomington, Indiana 47408

*November, 1996*

19716.09

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## 1.0 INTRODUCTION

This document is submitted to U.S. EPA Region V in partial fulfillment of the requirements of a U.S. EPA Administrative Order on Consent (Consent Order), dated November 27, 1990, and directed to respondents Franklin Power Products, Inc., and Amphenol Corporation. Respondents are responsible for conducting a Resource Conservation and Recovery Act Facility Investigation (RFI) and a Corrective Measures Study (CMS) at the Former Amphenol Facility located at 980 North Hurricane Road, Franklin, Indiana.

This document presents the results of an investigation to evaluate the shallow ground water near Hurricane Creek for the presence of VOC contaminants. The investigation was conducted in response to a letter from U.S. EPA, Region V dated September 12, 1996 and received by Amphenol on September 16, 1996, and in accordance with a telephone conversation between representatives of U.S. EPA and Amphenol dated October 8, 1996. The September 12 letter stated that while visual observations had been employed by the Respondent to evaluate geologic and hydrogeologic conditions at Hurricane Creek, the observations as reported did not demonstrate that ground water at Hurricane Creek has not been impacted by VOCs entering Hurricane Creek from the Former Amphenol Site via storm sewer discharge. The letter from U.S. EPA directed the Respondents to address this matter by implementing one of two options as follows:

*Option 1:* Sample ground water beneath the bed load of Hurricane Creek during low flow conditions employing a sampling technique modified from the *Supplemental Work Plan for Sampling Creek Bed Water in Hurricane Creek, RCRA Facility Investigation (RFI), Former Amphenol Facility, Franklin, Indiana* (June 14, 1994). Sample locations should be near those specified in the 1994 Work Plan.

*Option 2:* Install and sample at least one monitoring well at Hurricane Creek screened in the uppermost water bearing zone. The monitoring well is to be installed at either creek bank, and at a location not further than 500 feet upstream or downstream from Forsythe Street.

During the October 8, 1996 telephone conversation, Amphenol proposed to:



- Install and log soil hand auger borings to Unit C or the uppermost water-bearing zone at three locations along Hurricane Creek.
- Collect ground water through the auger hole with a Teflon bailer and backfill holes.
- Mark locations for survey into the existing sampling system.

After some discussion, U.S. EPA agreed that there appeared to be no reason to believe that ground water sampling in this manner could not yield results equivalent to monitoring well sampling. It was agreed that samples would be collected from two points near the confluence of Hurricane Creek with the storm sewer outfall: one near the creek bank and one farther away from the creek. A third sample would be attempted at the approximate location of survey point 128 (located on Figure 1 of the June 1996 CMS Addendum Report). If water was not encountered, a sample of the lowermost unconsolidated materials encountered would be collected and analyzed.

## 2.0 METHODS AND MATERIALS

Pursuant to the agreed to methodology, an initial attempt to collect ground water samples was made on October 10, 1996. Borings were advanced with a 2.75-inch OD stainless steel hand auger at seven locations in the area of the confluence of the storm sewer outfall and Hurricane Creek. All met refusal at depths from 19 to 27 inches, at the top of a layer of cobbles estimated to be four to eight inches on the long axis. The cobbles were large enough that standard drilling methods with a hollow stem auger would be unsuccessful, as would direct push methods (e.g., *Geoprobe*). It was determined that the cobble layer was shallow enough to be reached by hand excavation, and the cobbles could be removed. Soil augering by hand continued below that level. Ground water was sampled with a Teflon bailer. Samples were transferred to 40 ml VOA vials and submitted for analysis for VOCs. An equipment blank, a duplicate and a matrix spike/duplicate was collected for QA/QC. Between borings, the auger was decontaminated by washing and scrubbing with an *Alconox* solution, then thoroughly rinsed with DI water and allowed to air dry.

### 3.0 RESULTS

On October 25, 1996 three excavations (SB-2, SB-3 and SB-4) were made at locations shown on Figure 1. Sample locations are all some distance north of the creek bank because the ground surface is lower in elevation than nearer the creek, possibly the result of past disposal of dredged materials along the north bank of the creek. Analytical results are shown in Table 1, and laboratory data sheets are included in the Appendix. The compounds acetone and methylene chloride are disregarded in the text because both compounds were found in the equipment blank at levels at or above those in the analytical samples. Ground elevations at each boring location are shown in the text. **To maintain consistency with previous elevation data generated for the RFI/CMS, all tabulated elevations are 0.76 feet lower than true elevation.**

#### 3.1 SB-2 Results

SB-2 is located 48 feet directly northwest of the point of the point of confluence of the storm drain outfall and Hurricane Creek. The surveyed ground elevation at this boring is 719.87 MSL.

##### By shovel:

0-0.8 feet	dry, sandy brown loam
0.8-1.2 feet	dry, gray-brown medium sand, some pebbles
1.2-1.8 feet	cobbles, 8-11 inches across

##### By hand auger:

1.8-4.1 feet	fine gray-brown clayey sand, moist
4.1-5.4 feet	sandy gray clay, moist, slight sulfide odor
5.4 feet	gray clay

Water began entering the bore hole just above the gray clay and there was a slight odor of sulfides. There were fine, silt-sized sediments in the sample water and the water effervesced when introduced into the VOA vial. On the assumption that the effervescence was the result of the preservative acid reacting with carbonates in the silt, the acid was discarded and the container again refilled. The water was still forming bubbles, and may have been charged with methane or hydrogen sulfide derived from the anaerobic decomposition of vegetative

material trapped in the sediments. An analytical ground water sample and a matrix spike/duplicate sample were collected at SB-2.

Analytical results indicate a very low level of carbon disulfide in the water. Carbon disulfide is produced naturally through microbial reduction of sulfates. The color and odor of the sediments brought to the surface location strongly suggests reduced organic materials and the presence of carbon disulfide at this location is likely to be a natural occurrence.

### 3.2 SB-3 Results

SB-3 is located 79 feet southwest of SB-2 and 40 feet north of the north bank of Hurricane Creek. The surveyed ground elevation at this location is 719.43 feet MSL.

#### By Shovel

0-0.7 feet	dry, sandy brown loam
0.7-1.3 feet	dry, gray-brown medium sand
1.3-2.2 feet	cobbles, 6-8 inches across

#### By hand auger

2.2-2.7 feet	dry, gray-brown fine sand
2.7-3.5 feet	dry, gray brown medium sand
3.5-4.2 feet	fine, gray, moist, clayey sand
4.2-4.6 feet	wet, coarse, gray sand over gray clay; water enters boring

Unlike SB-2, there was no fine sediment in the sample, no odors from the boring and no effervescence in the sample water. An analytical ground water sample and a duplicate were collected from SB-3.

Analytical results indicate no VOCs in the sample and a low level of carbon disulfide in the duplicate sample. See the discussion of carbon disulfide in the preceding section.



### 3.3 SB-4 Results

SB-4 is located 105 feet northeast of the center of a power line corridor over Hurricane Creek, and 40 feet north of the creek bank. The surveyed ground elevation at this location is 720.03 feet MSL.

#### By shovel

- 0-1.0 feet dry, gray-brown sandy loam
- 1.0-1.5 feet dry pebbles, 0.5-2 inches in diameter

#### By hand auger

- 1.5 4.0 feet sandy, pebbly brown loam; moist at the bottom
- >4.0 feet large cobbles too deep to dig out; attempted a second boring in the same excavation with the same result; collected sample SB-4 at the bottom of the loamy layer

The soil sample was placed in a 125 ml VOA jar with a Teflon septum. There were no odors noted in the boring.

Analytical results indicate that there were no VOCs present in this soil sample. It should be noted that there were no significant VOC concentrations in ground water sampled at MW-32 and MW-33.

### 4.0 DISCUSSION

Water appeared in the SB-2 and SB-3 at approximate elevations of 714.47 feet MSL and 714.83 feet MSL. Both elevations are at or below the stream bottom elevation at Survey Station 122 at the confluence of the storm sewer outfall and Hurricane Creek, so it is quite likely that the subsurface water body sampled for this investigation communicates with the water of Hurricane Creek. There is no evidence from this investigation that VOCs transported from the former Amphenol facility are present in the ground water in the vicinity of the creek. Previous ground water sampling from monitoring wells MW-32 along Forsythe Street and MW-33 along Ross Court has indicated that no VOCs are present at significant concentrations at those locations. The very low level of carbon disulfide in the water samples is very likely to be a natural occurrence.



Based on the findings of this investigation and of previous RFI and CMS investigations, there is no evidence of a VOC contaminant pool in ground water adjacent to Hurricane Creek. Furthermore, based on previous analytical results from MW-32 and MW-33, there are no significant levels of VOCs in ground water upgradient from the soil borings.

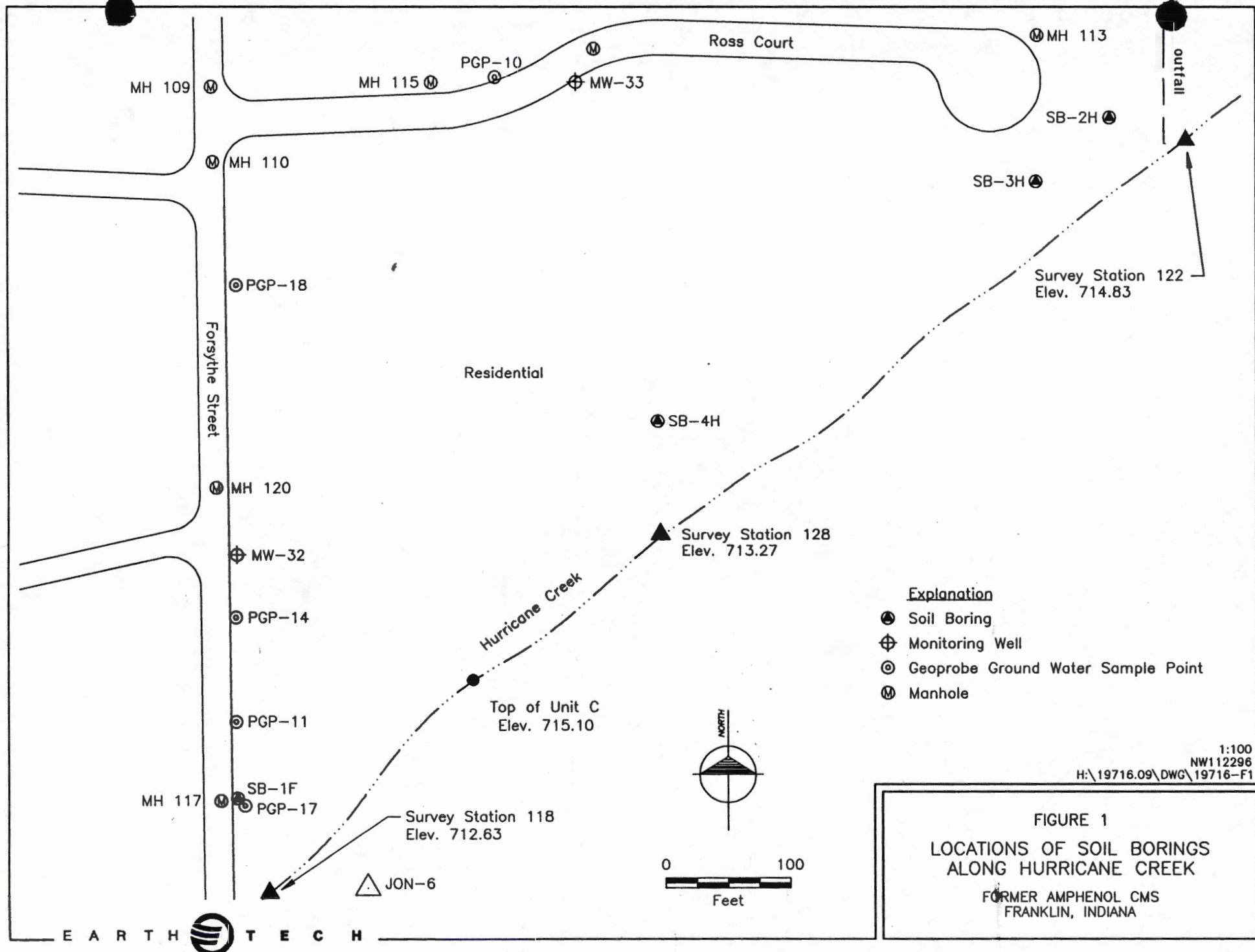


Table 1. VOC Concentrations in Soil and Water Samples Collected Along Hurricane Creek

(October 25, 1996)

Soil Boring No.	SB-2 (ug/l)	SB-3 (ug/l)	SB-3 dupe (ug/l)	SB-4 (ug/kg)
Compound				
acetone	13B	10B	11B	BDL
methylene chloride	12B	11B	10B	BDL
carbon disulfide	1	BDL	1	BDL

Note: "B" indicates that the compound was also detected in the equipment blank



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-2

Lab Name: SWL-TULSA

Contract: FRANKLIN

Lab Code: SWOK

Case No.: EARTHIN SAS No.:

SDG No.: 27433

Matrix: (soil/water) WATER

Lab Sample ID: 27433.01

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: R24980.D

Level: (low/med) LOW

Date Received: 10/28/96

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 10/29/96

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	12	B
67-64-1	Acetone	13	B
75-15-0	Carbon Disulfide	1	J
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
108-88-3	Toluene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (Total)	5	U



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-2

Lab Name: SWL-TULSA

Contract: FRANKLIN

Lab Code: SWOK

Case No.: EARTHIN SAS No.:

SDG No.: 27433

Matrix: (soil/water) WATER

Lab Sample ID: 27433.01

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: R24980.D

Level: (low/med) LOW

Date Received: 10/28/96

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 10/29/96

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

Q

110-75-8-----2-Chloroethyl Vinyl Ether

10

U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-3

Lab Name: SWL-TULSA

Contract: FRANKLIN

Lab Code: SWOK

Case No.: EARTHIN SAS No.:

SDG No.: 27433

Matrix: (soil/water) WATER

Lab Sample ID: 27433.04

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: R24983.D

Level: (low/med) LOW

Date Received: 10/28/96

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 10/29/96

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	11	B
67-64-1-----	Acetone	10	B
75-15-0-----	Carbon Disulfide	5	U
75-35-4-----	1,1-Dichloroethene	5	U
75-34-3-----	1,1-Dichloroethane	5	U
540-59-0-----	1,2-Dichloroethene (total)	5	U
67-66-3-----	Chloroform	5	U
107-06-2-----	1,2-Dichloroethane	5	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	5	U
56-23-5-----	Carbon Tetrachloride	5	U
108-05-4-----	Vinyl Acetate	10	U
75-27-4-----	Bromodichloromethane	5	U
78-87-5-----	1,2-Dichloropropane	5	U
10061-01-5-----	cis-1,3-Dichloropropene	5	U
79-01-6-----	Trichloroethene	5	U
124-48-1-----	Dibromochloromethane	5	U
79-00-5-----	1,1,2-Trichloroethane	5	U
71-43-2-----	Benzene	5	U
10061-02-6-----	trans-1,3-Dichloropropene	5	U
75-25-2-----	Bromoform	5	U
108-10-1-----	4-Methyl-2-Pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	5	U
108-88-3-----	Toluene	5	U
79-34-5-----	1,1,2,2-Tetrachloroethane	5	U
108-90-7-----	Chlorobenzene	5	U
100-41-4-----	Ethylbenzene	5	U
100-42-5-----	Styrene	5	U
1330-20-7-----	Xylene (Total)	5	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-3

Lab Name: SWL-TULSA

Contract: FRANKLIN

Lab Code: SWOK

Case No.: EARTHIN SAS No.:

SDG No.: 27433

Matrix: (soil/water) WATER

Lab Sample ID: 27433.04

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: R24983.D

Level: (low/med) LOW

Date Received: 10/28/96

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 10/29/96

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

Q

110-75-8-----2-Chloroethyl Vinyl Ether

10

U



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-3DUPE

Lab Name: SWL-TULSA

Contract: FRANKLIN

Lab Code: SWOK

Case No.: EARTHIN SAS No.:

SDG No.: 27433

Matrix: (soil/water) WATER

Lab Sample ID: 27433.05

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: R24984.D

Level: (low/med) LOW

Date Received: 10/28/96

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 10/29/96

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	10	B
67-64-1-----	Acetone	11	B
75-15-0-----	Carbon Disulfide	1	J
75-35-4-----	1,1-Dichloroethene	5	U
75-34-3-----	1,1-Dichloroethane	5	U
540-59-0-----	1,2-Dichloroethene (total)	5	U
67-66-3-----	Chloroform	5	U
107-06-2-----	1,2-Dichloroethane	5	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	5	U
56-23-5-----	Carbon Tetrachloride	5	U
108-05-4-----	Vinyl Acetate	10	U
75-27-4-----	Bromodichloromethane	5	U
78-87-5-----	1,2-Dichloropropane	5	U
10061-01-5-----	cis-1,3-Dichloropropene	5	U
79-01-6-----	Trichloroethene	5	U
124-48-1-----	Dibromochloromethane	5	U
79-00-5-----	1,1,2-Trichloroethane	5	U
71-43-2-----	Benzene	5	U
10061-02-6-----	trans-1,3-Dichloropropene	5	U
75-25-2-----	Bromoform	5	U
108-10-1-----	4-Methyl-2-Pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	5	U
108-88-3-----	Toluene	5	U
79-34-5-----	1,1,2,2-Tetrachloroethane	5	U
108-90-7-----	Chlorobenzene	5	U
100-41-4-----	Ethylbenzene	5	U
100-42-5-----	Styrene	5	U
1330-20-7-----	Xylene (Total)	5	U



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-3DUPE

Lab Name: SWL-TULSA

Contract: FRANKLIN

Lab Code: SWOK

Case No.: EARTHIN SAS No.:

SDG No.: 27433

Matrix: (soil/water) WATER

Lab Sample ID: 27433.05

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: R24984.D

Level: (low/med) LOW

Date Received: 10/28/96

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 10/29/96

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

Q

110-75-8-----2-Chloroethyl Vinyl Ether\_\_\_\_\_

10

U